



Theme Implementation Plan for Transportation Theme

U.S. Department of Transportation

Federal Geographic Data Committee (FGDC)

10/31/18



Transportation Theme FY17 Implementation Plan Report



Overview

As part of meeting the requirements under [OMB Circular A-16 Supplemental Guidance](#) and [OMB Circular A-16 Appendix E - NGDA Data Themes, Definitions, and Lead Agencies](#) for NGDA Portfolio Management and NGDA Theme Management, NGDA Themes Leads for a Theme, in coordination with associated NGDA Dataset Managers, have developed Theme Strategic Plans and corresponding implementation plans for each Theme in the NGDA Portfolio. This report provides information on implementing the goals, objectives, and actions outlined in the Theme's Strategic Plan (link below). The report includes information on Theme Personnel (Table 1), National Geospatial Data Asset (NGDA) Datasets associated with the Theme (Table 2), and the human and financial resources needed to manage the Theme (Table 3). Table 4 provides a status update on progress made in the current reporting period toward meeting Theme Strategic Plan goals and objectives. Table 5 provides details on the Theme Implementation Plan.

Theme Strategic Plan

https://communities.geoplatform.gov/ngda-portfolio/wp-content/uploads/2016/2016_Reports/Transportation_Theme_Strategic_Plan_2016_2019.pdf

Theme Personnel

Theme personnel play a vital role in the operation and maintenance of a Theme. They are “individuals who provide interdepartmental leadership and coordination at the NGDA Theme level. They work with component NGDA Dataset Managers to develop standards and provide guidance. The NGDA Theme Lead, or designee, chairs the NGDA Theme's Thematic Committee and manages the annual process of providing NGDA Dataset collaboration and funding recommendations to the FGDC Steering Committee for those NGDA Datasets within their NGDA Theme. Additionally, the NGDA Theme Lead reports to the Executive NGDA Theme Champion and the FGDC Coordination Group on the NGDA Theme's activities and investments (both current and planned).” Table 1 provides a summary of current Theme Personnel followed by Table 2 that lists the NGDA Datasets that comprise the Theme.

Theme Personnel	
Theme Lead (Co-Leads):	Raquel Wright
Theme Lead Agency(ies):	USDOT
Executive Theme Champion(s):	TBD
Executive Champion Agency(ies):	USDOT

Table 1. Personnel Involved in Theme Management.

Transportation Theme NGDA Datasets	NGDA Agency
Airports	USDOT FAA
Runways	USDOT FAA
Intermodal (Freight)	USDOT BTS
Roads	FHWA & DOC - Census
2010 Census Traffic Analysis Zone (TAZ)	DOC - Census
Rail Lines	USDOT FRA
Rail Nodes	USDOT FRA
Inland Electronic Navigational Charts (IENC)	DOD - USACE
Locks	DOD - USACE
Ports	DOD - USACE
Waterway Lines	DOD - USACE
Waterway Nodes	DOD - USACE
Intermodal (Passenger)	USDOT BTS
Bridges	USDOT FHWA
Transit (Lines)	USDOT BTS
Transit (Stations)	USDOT BTS

Table 2. NGDA Datasets within the Theme.

Human and Financial Resources Needed for Theme Management

The following table provides an estimate of resources needed for managing this Theme. It includes different activities, the roles that support them, as well as an estimated decimal Full Time Equivalent (FTE) and FTE grade. This estimate does not include the resources required for the agency to develop and maintain the NGDA Dataset(s) that make up the Theme to meet the agency's core mission

Reporting Period for Human and Financial Resources¹: 10/2017 – 9/2018

Description of Theme Management Activities	Role (Theme Lead, co-Theme Lead, NGDA Coordinator, other as specified)	FTE ²	FTE Grade
NGDA Theme management (e.g., attend meetings, review NGDA documents, develop Theme Strategic Plans, etc.)	Theme Lead	.25	14

Table 3. Human and Financial Resources Needed for Theme Management.

¹ Reporting period should align with October 1 – September 30 and be submitted by October 31.

² A full-time employee was available a maximum of 1952 hours during the inclusive period of October 1 – September 30; assuming a Monday-Friday schedule with 8-hour workdays and not counting Federal Holidays. The FTE was determined by taking actual number of hours worked in support of Theme Management divided by 1952 hours, rounded to the nearest 0.01.

Progress against Goals and Objectives

The following table shows the progress status made toward achieving the Theme's Strategic Plan goals and objectives since the last reporting period. Status categories include 'Not Started' for those activities that have not gotten underway in the reporting period; 'In Progress' for those activities underway which will continue into the next year; 'Complete' for the activities finished, or 'Recurring (completed for the current reporting period).

Summary of Goals and Objectives undertaken during 2018	Status
Goal 1: Facilitate the Sharing of Transportation Geospatial Data	
Objective 1.1: Provide Web Feature Services for the National Geospatial Data Asset (NGDA) datasets of the Transportation Theme.	In Progress
Objective 1.2: Leverage the Geospatial Platform.	In Progress
Goal 2: Ensure the Effective Development of the Transportation NGDA Datasets	
Objective 2.1: Continued development and support of the All Roads Dataset NGDA and its related Address Range-Feature Name Relationship File and the Address Ranges Relationship File NGDA.	In Progress
Objective 2.2: Continued development and support of the Rail NGDA.	In Progress
Objective 2.3: Continued development and support of the Airports and Runways NGDA.	Recurring (completed for 2018)
Objective 2.4: Continued development and support of the Transit NGDA.	Recurring
Objective 2.5: Continued development and support of the Bridge NGDA.	In Progress
Objective 2.6: Continued development and support of the Intermodal Facilities NGDA.	In Progress
Objective 2.7: Continued development and support of the Navigable Waterway, Ports, Locks, and Inland Electronic Navigation Charts NGDA.	Recurring (completed for 2018)
Objective 2.8: Continued development and support of the Traffic Analysis Zones NGDA.	Retire in 2020
Goal 3: Convene Leadership of the Transportation Geospatial Community	
Objective 3.1: Lead and participate in the development and coordination of national and international standards applicable to the transportation geospatial community.	In Progress
Objective 3.2: Lead the transportation geospatial community and advocate shared resources.	Recurring (completed for 2018)

Table 4. Theme Implementation Plan Progress Status.

Theme Implementation Plan

The following table provides details for achieving Theme Strategic Plan goals and objectives over the multi-year planning period. These include roles and responsibilities, specific actions, milestones, performance indicators and projected completion dates.

Goal 1: Facilitate the Sharing of Transportation Geospatial Data				
Objective 1.1: Provide Web Feature Services for the National Geospatial Data Asset (NGDA) datasets of the Transportation Theme. Agency and/or Stakeholders Involved: USDOT Anticipated Outcome: More current data available to all through WFS. Cost savings through reduced duplication of effort.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
1.1.1 Develop, maintain, and publish WFS for the NDGA datasets of the Transportation Theme	Develop WFS – Rolling, as NGDA datasets are updating by dataset managers and available through the National Transportation Atlas Database (NTAD) Optimize WFS – Rolling, as NGDA datasets are updating by dataset managers and available through the National Transportation Atlas Database (NTAD).	Number of NDGA datasets with WFS Number of optimized WFS Number of dataset owners originating WFS	BTS NTAD Manager	2020/Q4
1.1.2 Register the WFS on the Geospatial Platform/Clearinghouse	Register WFS - June 2019. After, as new datasets are updated by dataset managers	Number of registered WFS on Geospatial Platform	BTS NTAD Manager	2020/Q4

1.1.3 Market the WFS to the stakeholder community and encourage feedback and partnerships	Conduct Webinars - ongoing Conduct Listening Sessions - ongoing Attend Industry Events - ongoing Employ Social Media - ongoing	Number and type of outreach events held	BTS OSAV Director	2020/Q4
Agency and/or Stakeholder		Activity through FY 2020, Q4		
USDOT BTS		1.1.1 The Bureau of Transportation Statistics (BTS) dedicated resources to create, update and maintain Open Geospatial Consortium (OGC) Web Feature Services (WFS), Open Geospatial Consortium (OGC) Web Mapping Services (WMS), and ESRI Web Feature Services for all completed Transportation NGDA layers that are part of the National Transportation Atlas Database (NTAD). The BTS began optimizing and tuning all the NTAD NGDA WFSes, geodatabases and other geospatial data sources to allow for rapid data return and rendering with no visible latency by internal and external users. This involve vector tiling or web tiling in some instances where applicable. 1.1.2 The BTS will register the optimized NTAD NGDA WFSes on the Geospatial Platform/Clearinghouse. 1.1.3 The BTS employed Social Media throughout the year to inform industry and the public about NTAD updates and releases.		
Objective 1.2: Leverage the Geospatial Platform.				
Agency and/or Stakeholders Involved: USDOT				
Anticipated Outcome: Efficient, effective use of shared technology infrastructure to encourage and support better information sharing. Cost savings through shared geospatial investment planning.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
1.2.1 Publish the WFS for the Transportation Theme NGDA datasets to the Geospatial Platform	Publish WFS - Ongoing, as NGDA datasets are updated.	Number of published WFS on Geospatial Platform	BTS NTAD Manager	On-going

1.2.2 Develop and maintain the Transportation Community pages on the Geospatial Platform	Update Transportation Subcommittee page after each monthly meeting	Number of page updates	Chair of the Transportation Subcommittee	On-going
1.2.3 Develop and maintain the NGDA Transportation Theme Community the Geospatial Platform	Update the NGDA Transportation Theme Community page as needed	Review content at least once a year	Chair of the Transportation Subcommittee	On-going
Agency and/or Stakeholder		Activity through FY 2018 Quarter 4		
USDOT BTS		1.2.1 The Bureau of Transportation Statistics will work with USDOT GIO staff and ESRI staff to publish the WFS for the Transportation Theme NGDA datasets.		
USDOT BTS		1.2.2 The Bureau of Transportation Statistics and Chair of the Transportation Subcommittee updates the Transportation Subcommittee page after each monthly meeting, on the Geospatial Platform		
USDOT BTS		1.2.3.2 The Bureau of Transportation Statistics works with FGDC staff and Transportation Theme NGDA dataset managers to publish/maintain up to date metadata/metadata pages on data.gov		
Chair of the Transportation Subcommittee		1.2.2 TSC Chair Authored a new Transportation Subcommittee Website . It explains the subcommittee's purpose, details its schedule, provides meeting minutes, and features links to its working group's website. Each working group site provides the same content as the TSC site.		
Chair of the Transportation Subcommittee		1.2.3 The TSC chair reviewed and updated the NGDA Transportation Theme Page. The Chair added new links to the subcommittee website and its working groups.		

Goal 2: Ensure the Effective Development of the Transportation NGDA Datasets				
<p>Objective 2.1: Continued development and support of the All Roads Dataset NGDA and its related Address Range-Feature Name Relationship File and the Address Ranges Relationship File NGDA.</p> <p>Agency and/or Stakeholders Involved: FHWA & Census</p> <p>Anticipated Outcome: A single all roads network, with associated address ranges/points, that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement. Transition of the All Roads NGDA management from the Department of Commerce/Census Bureau to DOT through the FHWA's All Roads Network Of Linear-referenced Data (ARNOLD) program.</p>				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
<p>2.1.1 Develop a strong partnership between DOT and the Department of Commerce/Census Bureau to ensure that data collected through FHWA's ARNOLD program can be utilized in the Topologically Integrated Geographic Encoding and Referencing (TIGER) files.</p>	2.1.1.1 USRS working group forums	2.1.1.1 Number of meetings held	FGDC Transportation Subcommittee, US Road Specification Working Group	2.1.1.1 On-going Collaboration is accomplished through the USRS-WG
	2.1.1.2 Proposed USRS attribute data requirements	2.1.1.2 Percent of proposed data requirements that have been reviewed and/or discussed		2.1.1.2 2018/Q3 USRS-WG has reviewed 100% of proposed attributes and 2 standards
	2.1.1.3 Final USRS attribute data requirements	2.1.1.3 Percent of proposed data requirements that have been reviewed, discussed, and received feasibility concurrence (from both the Dept. of Commerce/Census Bureau and DOT)		2.1.1.3 2019/Q4
2.1.2 Work with stakeholders, particularly DOC/	2.1.2.1 Regular meetings between DOT and Census Bureau	2.1.2.1 Number of meetings held	GIO, FGDC Transportation Subcommittee, FHWA	2.1.2.1 Ongoing

Census Bureau, the National States Geographic Information Council(NSGIC), and the Next Generation 911 community, to develop a NGDA of address points	2.1.2.2 Meetings with NSGIC and National Emergency Number Association (NENA) at the mid-year and annual NSGIC conferences	2.1.2.2 Attendance and presentations at the NSGIC conferences	HPMS/ARNOLD Program	2.1.2.2 Ongoing
2.1.3 Continue to support the DOC/ Census Bureau as manager of the Address Range-Feature Name Relationship File and the Address Ranges Relationship File NGDA	2.1.3.1 Regular meetings between DOT and Census Bureau	2.1.3.1 Number of meetings held	GIO, FGDC Transportation Subcommittee, FHWA HPMS/ARNOLD Program	2.1.3.1 Ongoing
Agency and/or Stakeholder		Activity through FY 2018 Quarter 4		
FGDC Transportation Subcommittee/United States Road Specification Working Group		2.1.1.1 – As of 2017 the collaboration between the USDOT and the USDOC/Census Bureau has been facilitated by the United States Road Specification Working Group. The USRN Working Group held 9 meetings in 2018. 2.1.1.2 – All the proposed data requirements for the USRN have been reviewed and discussed. 2.1.1.3 - All data requirements for the USRN have been reviewed, discussed, and received feasibility concurrence (from both the Census Bureau, USGS, and DOT) 2.1.1.4 DOT hosted and Census Bureau participated in the six meetings of the Transportation Subcommittee (TSC) in 2018. At the April TSC meeting, the Census Bureau and the US Geological Survey (USGS) did a presentation on sharing TIGER roads data for USGS products.		
GIO, FGDC Transportation Subcommittee, FHWA HPMS/ARNOLD Program		2.1.2.1 DOT and Census Bureau met seven times during the reporting period to discuss and plan for the National Address Database (NAD).		

	<p>Census Bureau and DOT hosted and participated in all nine Address Theme Subcommittee Meetings in 2018. DOT and Census Bureau attended GIS-T Conference in March 2018. The Address Theme Co-Chair gave an annual update on the NAD at the FGDC Coordination Group meeting in October 2018.</p> <p>2.1.2.2 DOT and Census Bureau attended NENA conferences in February 2018 (9-1-1 Goes to Washington) and June 2018 (Annual conference in Nashville, TN) and participated in a webinar for the NSGIC Geo-Enabled Elections Project in May 2018.</p>
GIO, FGDC Transportation Subcommittee, FHWA HPMS/ARNOLD Program	2.1.3.1 Hold quarterly meetings between Census Bureau and DOT. These files are not NGDA. No further action will be taken

Objective 2.2: Continued development and support of the Rail NGDA. Agency and/or Stakeholders Involved: USDOT FRA Anticipated Outcome: A single rail network that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.2.1: Conflate existing rail networks from DOT/Federal Railroad Administration (FRA) and from the Department of Defense (DOD) to produce a single, authoritative rail network NGDA Dataset managed by FRA	Completed	Published the North American Rail Network (NARN)	Federal Railroad Administration	2016/Q2
2.2.2 Develop a Memo of	- Development of the MOU	MOU will be published on FRA's website	Federal Railroad Administration	2019/Q2

Understanding (MOU) between FRA and Railinc which is a subsidiary of the American Association of Railroads (AAR). This effort will ensure that FRA always has the most up-to-date rail data from the Class 1s.	- Approval and signatures from all parties			
2.2.3 Work with stakeholders, particularly DOD, AAR, and the National Emergency Numbers Association, to ensure that all stakeholder needs are met	<ul style="list-style-type: none"> - Professional presentations on the status of the NARN - Outreach with stakeholders on the current improvements and enhancements - Ongoing 	<ul style="list-style-type: none"> - Professional presentations on the status of the NARN - Attending meetings and professional conferences 	Federal Railroad Administration	Ongoing
Agency and/or Stakeholder		Activity through FY 2019 Quarter 4		
Federal Railroad Administration & Railinc		2.2.2: Meetings with Railinc to finalize the language of the MOU. 2018/Q4		
Federal Railroad Administration & Railinc		2.2.2: Signing of the MOU by all parties. 2019/Q2		
Federal Railroad Administration		2.2.3: Working with Stakeholders on the current development of the North American Rail Network (NARN). Continued to publicize the NARN by presenting the current enhancements of the data and any developments underway. Participate in meetings, conferences, and summits to work with Stakeholders. Ongoing		

Objective 2.3: Continued development and support of the Airports and Runways NGDA.
Agency and/or Stakeholders Involved: FAA
Anticipated Outcome: A single set of airport and runway data that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.

Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.3.1 Examine all of the airport information contained in the National Air Space (NAS) and determine which parts are good candidates to be included in the NGDA	Development /Implementation of the Airports Authoritative Source	Effort is on schedule Availability date is only 9 months out therefore no interim milestones are identified	Program Management Office development for AJV-5 and Airports Office under FAA's NavLean initiative	Jan 2018
2.3.2 Enact changes to improve Federal Aviation Administration data collection and data utilization workflows and enhance singular distribution mechanisms that allow users to access and update authoritative aeronautical information	Aeronautical Information Management Modernization Segment 2 & 3 (AIMM S2 & S3) Segment 2 is establishing the Aeronautical Common Service (ACS) with data access through SWIM	Jan 2018 In addition to the Airport Authoritative Source (AAS) the following authoritative sources also become available: <ul style="list-style-type: none"> • Obstacle Authoritative Source (OAS) • Federal NOTAM System • Special Use Airspace (SUA) 	Program Management Office development for AJV-5 and FAA	2019-2024

		<ul style="list-style-type: none"> • Navaid Authoritative Source (NAVAS) 		
2.3.3 Establish a web interface for external users outside the Federal Aviation Administration system to obtain needed aeronautical information	External Data Access Initiative (EDAi) has established open data website https://www.faa.gov/got_data/aero_data/	Complete	AJV-5	Jun 2016
Agency and/or Stakeholder		Activity through FY 2017 Quarter 2		
DOT FAA		2.3.1 2018, Q1 The FAA Program Management Office will dedicate resources to create, update and maintain Open Geospatial Consortium (OGC) Web Feature Services (WFS) for airport feature data currently held within the NASR data resource as those data are relocated to the Airport Authoritative Source (AAS) within the NAVLean initiative. The PMO will migrate, validate, and make available airport data by exposing OGC standard services from the AAS		
DOT FAA		2.3.2 2018, Q1 The FAA Program Management Office is currently in the test and evaluation phase of release 3 within the Aeronautical Information Management Modernization Segment 2 (AIMMS2) acquisition program. The PMO will deploy release 3 of the AIMMS3 in Q1, 2018 which delivers WFS and WMS as part of the Aeronautical Common Service, a resource for integrating and exposing aeronautical data to System Wide Information Management (SWIM) consumers using OGC service standards and the internationally recognized aeronautical information exchange standard, AIXM. Data modeled in AIXM and exposed through WFS and WMS services include Notices to Airmen (NOTAMs), schedule and airspace feature information for Special Activity Airspace (SAA), obstacle data from the obstacle authoritative source, and other reference data from the NASR aeronautical data resource. These services will be		

	<p>registered on the FAA SWIM Registry and discoverable to SWIM “On-ramped” consumers. The AIMMS3 program is still in planning and will reach its investment analysis readiness decision (IARD) milestone in Q4, 2017.</p> <p>Development and deployment activities and schedule have not been finalized for the program. We will be able to better define these milestones and deliverables once AIMMS3 is approved to enter the Investment Analysis phase of our Acquisition Management System at IARD</p>
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Objective 2.4: Continued development and support of the Transit NGDA. Agency and/or Stakeholders Involved: USDOT/BTS Anticipated Outcome: A single transit dataset that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.4.1 Develop relationships with individual transit agencies to receive regular, consistent, and reliable updates to the transit data	Outreach to Metropolitan Planning Organizations to bring additional key urban agencies on board with the goal of having complete coverage of all urban transit agencies in large and medium metropolitan areas	Number of urban transit agencies registering data for use with the National Transit Map Number of metropolitan areas with partial or full transit agency participation in the National Transit Map	BTS National Transit Map Manager	2017/Q4
	Develop strategy for including rural transit agencies	Number of rural transit agencies registering data for use with the National Transit Map	BTS National Transit Map Manager	2017/Q4
	Develop a sustainable, stable and efficient process for managing, optimizing and updating National Transit Map database	Frequency, consistency and timeliness of updates Speed of database access for users Time from GTFS scrape until services are ready for release	BTS National Transit Map Manager	2017/Q4

2.4.2 Assist and inform the stakeholder community, including American Public Transportation Association, Community Transportation Association of America, AASHTO, ITS America and ten other federal partners who are providing transportation services, on the USDOT collection of transit geospatial data	Conduct webinars	Number and type of outreach events held	BTS National Transit Map Manager	2018/Q4
	Conduct listening sessions			
	Attend industry events			
	Employ social media			
	Acquire/create and provide training and tools	Number of training modules available Number of times training accessed or offered	BTS National Transit Map Manager	2019/Q4

Agency and/or Stakeholder	Activity through FY 2018 Quarter 4	
2.4.3 USDOT BTS	2.4.3.1	The Bureau of Transportation Statistics (BTS) continued to lead a collaborative National Transit Map (NTM) initiative with the Federal Transit Administration, DOT Office of the Chief Information Officer, Secretary's Office of Policy and Secretary's Office of Civil Rights.
	2.4.3.2	BTS analyzed urban transit agency participation in the NTM and identify 294 transit agencies who are registered with the NTM.
	2.4.3.3	NTM initiative team members conducted outreach and discussion with those in the urban focus cohort to have them register or create and register GTFS data for the NTM. This involved a focus on Metropolitan Planning Organizations to identify registration candidates.
	2.4.3.4	NTM initiative team members conducted outreach and discussion with those transit agencies in rural areas to develop approaches to have them register or create and register GTFS data for the NTM.

	<p>2.4.3.5 The BTS worked with partners to attend and present at other forums to discuss the NTM, GTFS collection or passenger travel projects. This includes presentations at the Transportation Research Board's Annual Meeting, GIS in Transit conference, National Intercity Bus Traffic Association and The Rural and Intercity Bus Conference.</p> <p>2.4.3.6 BTS updated the NTM once.</p> <p>2.4.3.7 BTS reanalyzed its current NTM collection and database processes and develop a roadmap for creating a sustainable, stable and efficient process for managing, optimizing and updating National Transit Map database. As a result he BTS developed a Statement of Work and procurement strategy to bring on contract resources to tune the database and improve the efficiency of data collection and processing in FY19.</p>
2.4.4 USDOT FTA	2.4.4.1 On an ongoing basis, FTA headquarters will work with FTA Regional Offices to promote transit agency development of GTFS or other machine-readable data and promote transit agency participation in the NTM by voluntarily registering data with DOT.
2.4.5 USDOT DOCR	2.4.5.1 BTS worked with the Office of Civil Rights to identify and reach-out to stake holders and user groups that will benefit from access to the National Transit Map

Objective 2.5: Continued development and support of the Bridge NGDA.

Agency and/or Stakeholders Involved: FHWA

Anticipated Outcome: A single bridge dataset that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.

Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.5.1 Assist State DOTs to develop methodologies that ensure that their reported bridge locations are consistent with the FHWA	<ol style="list-style-type: none"> 1. Create draft new NBI Specification (90%) 2. Publish new NBI Specification 3. Build new NBI 4. Transition existing data into new NBI 5. Accept new submittal data into new NBI (spring 2020?) 	Number of full data submittals accepted into new NBI	FHWA Coding Guide Team, Samantha Lubkin (FHWA - NBI System Owner)	<ol style="list-style-type: none"> 1. 2019 2. 2020 3. 2023 4. 2023 5. 2023

ARNOLD program				
2.5.2 Develop, with the assistance of stakeholders, a dataset of rail bridges	<ol style="list-style-type: none"> 1. Develop a list of stakeholders 2. Determine the status of the rail bridges 3. Engage the rail industry on participation 	Collect and publish requirements and identify the stakeholders.	FRA	2019/Q2
2.5.3 Develop, as a part of the Bridge NGDA or as a separate NGDA, a dataset of road tunnels	<ol style="list-style-type: none"> 1. Publish NTIS regulation (done) 2. Publish NTI Specification (done) 3. Collect preliminary NTI data (done) 4. Build NTI database/application (95%) 5. Accept first full NTI data submittal (spring 2018) 6. Propose the Addition of Tunnel Data to the NSDI 	Number of full data submittals accepted into NTI	FHWA – HIBS – Samantha Lubkin (NTI System Owner)	<ol style="list-style-type: none"> 1. 2018 2. 2018 3. 2018 4. 2018 5. 2018 6. 2019
2.5.4 Develop, as a part of the Bridge NGDA or as a separate NGDA, a dataset of rail tunnels	<ol style="list-style-type: none"> 1. Develop a list of stakeholders 2. Determine the status of the rail tunnels 3. Engage the rail industry on participation 	Collect and publish requirements and identify the stakeholders.	FRA	2019/Q4
Agency and/or Stakeholder		Activity through FY 2019 Quarter 4		
FHWA		2.5.1: Draft specification is complete and out for review. Once published, new NBI can be developed and data collection dates can be set. TBD		
FRA		2.5.2: Hold meetings with FRA Safety staff on the current collection of bridges and develop a base data dictionary. 2018/Q2 2.5.2.1: FRA developed a SOW to use multiple data sources to update the Rail bridge database. 2018/Q2		

	2.5.2.2: Ongoing meetings with USGS with the status of the Rail Bridge project. 2018/Q4 2.5.2.3: Engage the AAR GIS Rail Committee on a data standard. Outreach with other Stakeholder on future developments of the rail bridges. 2019/Q2			
FHWA	2.5.3: Items 1 – 5 are complete. The addition of the National Tunnel Inventory will be considered in 2019.			
FRA	2.5.4: Hold meetings with FRA Safety staff on the current collection of tunnels and develop a base data dictionary. 2.5.4.1: Engage the AAR GIS Rail Committee on a data standard. Outreach with other Stakeholder on future developments of the rail tunnels. 2019/Q4 2.5.4.2: Engaged with USGS of potential data sources and processes for collecting rail tunnels. 2019/Q1			
Objective 2.6: Continued development and support of the Intermodal Facilities NGDA. Agency and/or Stakeholders Involved: USDOT/BTS Anticipated Outcome: A single Intermodal Facilities dataset that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.6.1 Pursue partnerships with stakeholders to assist in creating and updating the different layers in the database.	Outreach and successfully acquire data from Federal agencies, public sector agencies, industry, and industry associations with intermodal facility data – FY19/FY20	Each quarter release a different Intermodal Facilities layer, with the number of intermodal facilities including relevant attribute information during FY19/FY20	BTS NTAD Manager	2020/Q4
2.6.2 Develop a mechanism to ensure regular updates to the intermodal facilities.	Develop Intermodal Facilities Action Strategy – FY19	Development of Intermodal Facilities Action Strategy	BTS NTAD Manager	2020/Q4

Agency and/or Stakeholder	Activity through FY 2020, Q4
USDOT BTS	<p>2.6.1: The Bureau of Transportation Statistics (BTS) maintained a USDOT Intermodal Freight Facility (IMF) Working Group. The IMF Working group contains representation from relevant USDOT operating administrations. BTS scheduled quarterly meetings (or as needed) of the IMF Working Group, or meetings with specific Operating Administrations pertaining to respective data layers in the database. The BTS will worked in collaboration with FRA and MARAD to pursue partnerships with other public agencies and the industry to obtain location information and key intermodal freight facility attributes that can be placed in the public domain. The BTS worked with IMF Working Group members and USDOT Operating Administrations, on the type and level of aggregation and anonymization required to transform confidential data into public use data. In addition, how to create linkage with other transportation datasets using relational database tables.</p> <p>The BTS will work on updating the layers in the database along with stakeholders, with the expectation of releasing a new layer of the database every quarter throughout the next 2 fiscal years. Each layer will contain a specific mode and commodity type, with that layer's geographic location correctly represented, specific public attributes pertaining and specific to that layer, and linkages to other relevant outside databases/datasets.</p> <p>The BTS developed a draft of rail container on flat car and trailer on flatcar intermodal facilities and developed a draft of the top 60 air/truck intermodal facilities.</p> <p>The BTS released updates to the Intermodal Passenger Connectivity Database to incorporate new passenger transportation facilities. The BTS began developing a strategy to enhance the spatial accuracy of the database, use a measurable distance for connectivity, and link to APIs providing the locations of passenger transportation facilities.</p> <p>2.6.2: The BTS began developing an Intermodal Facilities Action Strategy that will create a mechanism to ensure regular updates to the Intermodal Freight Facility database over time and on a consistent schedule.</p>

Volpe Center	2.6.1 The Volpe National Transportation Systems Center actively participated in the IMF Working Group. Volpe worked in collaboration with BTS to facilitate and build some of the layers in the IMF, along with investigating and establishing with BTS partnerships with other stakeholders. Volpe provided guidance to BTS on the type and level of aggregation and anonymization required by the source data for specific layers, as to how to make it publicly releasable and link to other outside data sources.
USDOT FRA	2.6.1: The Federal Railroad Administration (FRA) actively participated in the IMF Working Group. The FRA worked in collaboration with BTS to pursue partnerships with the Association of American Railroads, Rail Inc., the American Short Line and Regional Railroad Association, and key individual railroads to obtain location information and key intermodal freight facility attributes that can be placed in the public domain. The FRA provided guidance to BTS on the type and level of aggregation and anonymization required to transform confidential rail data into public use rail data, along with insight from the Surface Transportation Board (STB), and on how to create linkages between other rail datasets.
USDOT FHWA	2.6.1: The Federal Highway Administration (FHWA) actively participated in the IMF Working Group. The FHWA extracted geospatial content and information from maps in each state's freight plans. FHWA worked with BTS in ensuring the geospatial files were consistent throughout each state to show content at a national level, and have the information be usable to supplement the Intermodal Freight Database for truck connections. This work continued to advance highway connectors to intermodal freight facilities and provided guidance to BTS on how to create linkages with other highway intermodal connector datasets.
USDOT MARAD	2.6.1: The Maritime Administration (MARAD) actively participated in the IMF Working Group. The MARAD worked in collaboration with BTS to pursue partnerships with the United States Army Corp of Engineers and Committee on the Marine Transportation System to obtain location information and key intermodal freight facility attributes that can be placed in the public domain. The MARAD worked with BTS in coordinating with the US Army Corps of Engineers (USACE) and Coast Guard, in obtaining Automated Identification System (AIS) data. These data enabled BTS to conduct spatial analysis to determine where potential intermodal water connection points could be. The MARAD also provided guidance to BTS on the type and level of aggregation and anonymization required to transform confidential maritime data into public use maritime data and how to create linkages between other maritime datasets.

Objective 2.7: Continued development and support of the Navigable Waterway, Ports, Locks, and Inland Electronic Navigation Charts NGDA.

Agency and/or Stakeholders Involved: USACE

Anticipated Outcome: A single set of waterway data that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.

Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.7.1 Develop a strong partnership between DOT and the United States Army Corps of Engineers (USACE) to ensure that the Navigable Waterway, Ports, Locks, and Inland Electronic Navigation Charts remain NGDA under the Transportation Theme	Complete Navigable Waterway lines, nodes, locks, and port facility datasets 2.7.1 a) Dec 2016 2.7.1.b) Mar 2017 2.7.1.c) Jun 2017 2.7.1 d) Sep 2017	Correct duplicate nodes, increase navigable waterway length to meet official navigable waterway length, added new nodes and shape points Updates completed NLT March 31 2017 June 30 2017 Sep 30 2017	Waterborne Commerce Statistics Center	2018/Q3-4
2.7.2 Encourage the USACE to continue to develop, maintain, and publish Waterway Network, Ports, Locks, and Inland Electronic	2.7.2 update Navigable Waterway lines, nodes, locks, and port facility datasets Publish on NDC Website: 2.7.2 a) Dec 2016 2.7.2.b) Mar 2017 2.7.2.c) Jun 2017	Will continue the corrections for agencies) 2.7.2 a) add/terminate services for Ports Facility dataset, update weekly report on website, publish quarterly dataset (shape file) on website	Waterborne Commerce Statistics Center	2018/Q3-4

Navigation Charts	2.7.2 d) Sep 2017	March 2017, June 2017, Sep 2017 2.7.2 b) Gather users (public, routing team, and research groups) request, verify data thru sources, prepare quarterly updates for waterway network, nodes, and locks. Publish on website March 2018, Jun 2018, Sept 2018.		
2.7.3 Develop a mechanism to ensure regular updates to the Waterway Network, Ports, Locks, and Inland Electronic Navigation Charts	Ongoing	Ongoing editing and updating datasets	Waterborne Commerce Statistics Center	2018/Q3-4
Agency and/or Stakeholder	Activity through FY 2018 Quarter 4			
Waterborne Commerce Statistics Center	<p>2.7.1 – USACE continually seeks to enhance the NWN (National Waterway Network) dataset and other databases (Master Links, Ports and Waterway Facility and routing systems).</p> <p>(a) New shape points available in the latest NWN for FY 2018.</p> <p>(b) Ports and Waterway Facility: Added 30 records (12 for Milespoints on the Houston Ship Channel, 12 for Docks, and 6 for Anchorages). Also, 12 Facilities were terminated in last two quarters of FY2018.</p> <p>(c) New LOCK & DAM OLMSTED added on Ohio River- mile 964.4.</p>			

Waterborne Commerce Statistics Center	2.7.2 – Prepare quarterly updates for waterway line, nodes and locks, Publish shape files on USACE Digital Library. https://usace.contentdm.oclc.org/digital/collection/p16021coll2/id/1472%20/ Prepare quarterly updates for Ports Facility data Publish shape files on U.S. Army Corps of Engineers Geospatial Platform website. http://geoplatform-usace.opendata.arcgis.com/search?q=ndc			
Waterborne Commerce Statistics Center	2.7.3 – Quarterly updates will continue for next quarter			
Objective 2.8: Traffic Analysis Zones NGDA - Retired Agency and/or Stakeholders Involved: FHWA/Census Anticipated Outcome: A single Traffic Analysis Zones dataset that is used throughout the DOT and across the federal government and meets the requirements of its stakeholders; reduced duplication of effort; greater stakeholder involvement.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
2.8.1	N/A			N/A
2.8.2	N/A			N/A
Agency and/or Stakeholder	Activity through FY 2017 Quarter 2			
Census Bureau/FHWA	Retire the TAZ – the program has been discontinued for 2020			

Goal 3: Convene Leadership of the Transportation Geospatial Community				
<p>Objective 3.1: Lead and participate in the development and coordination of national and international standards applicable to the transportation geospatial community.</p> <p>Agency and/or Stakeholders Involved: USDOT/OST</p> <p>Anticipated Outcome: Greater adoption and utilization of standards resulting in enhanced interoperability of geospatial data, services, and systems. Decreased barriers to exchanging geospatial content effectively and efficiently by reducing technical impediments to sharing geospatial data and services.</p>				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
3.1.1 Consult and collaborate with both existing and emerging geospatial communities to advance common standards and approaches	1. Join the Open Geospatial Consortium 2. Make standards development a task of the FGDC Transportation Subcommittee	OGC membership Regular reports from the Transportation Subcommittee	1. OST/OCIO 2. Transportation Subcommittee	1. 2017/Q4 2. 2018/Q4
3.1.2 Lead the development and implementation of standards for the Transportation Theme NGDA	1. Publish OGC compliant Web Feature Services 2. Publish NGDA standards where applicable	Functional WFS for every NGDA Published standards	1. OST-R/BTS 2. OST/OCIO	1. 2018/Q2 2. 2018/Q4
Agency and/or Stakeholder		Activity through FY 2018 Quarter4		
FGDC Transportation Subcommittee		Quarterly meetings were held		
OST/BTS		Joined the Open Geospatial Consortium as a Technical Member		

Objective 3.2: Lead the transportation geospatial community and advocate shared resources. Agency and/or Stakeholders Involved: USDOT/OST Anticipated Outcome: Greater awareness of the data and information resources available through the Transportation Theme of the NSDI, increased usage of shared services, reduced duplication of effort.				
Actions <i>(Describe discrete activities)</i>	Milestones <i>(A significant change in development with associated date)</i>	Performance Indicators <i>(A metric to assess progress of the action)</i>	Action Responsibility <i>(Agency, individuals, and/or groups leading the action)</i>	Projected Completion Date <i>(FY / Quarter)</i>
3.2.1 Produce comprehensive, effective, and useful transportation geospatial data that will demonstrate DOT's commitment to the NSDI and its stakeholders	Annual release of the National Transportation Atlas Databases	Usage/download metrics	OST-R/BTS	Ongoing, annual release
3.2.2 Engage with the stakeholder community, including NSGIC, AASHTO, AAR, and our partner federal agencies, to keep them informed of DOT geospatial activities and to solicit their feedback on the transportation data and services	<ol style="list-style-type: none"> 1. Participation in the NSGIC midyear and annual meetings. 2. Participation in the AASHTO GIS for Transportation Symposium 	Presentations given	OST/OCIO	Ongoing
Agency and/or Stakeholder	Activity through FY 2017 Quarter 2			
NSGIC	Midyear and annual meetings. Ongoing			
AASHTO	Annual symposium. Ongoing			

Table 5. Theme Implementation Plan.